Psy 210: SNIFFY PAPER OPTION
INSTRUCTIONS AND HELPFUL HINTS
FOR WRITING THE REPORT

You can design a classical or operant experiment using Sniffy and write up your project as a scientific report. This handout gives you general guidelines for the writing of such an assignment. See the last 20 exercises in SNIFFY for classical conditioning ideas and basic experiments, and see Julie if you want to get advice on an idea of your own. You can work with another person to conduct the study, so long as ALL THE WRITING, GRAPHING, AND SPECULATING ABOUT FINDINGS occurs individually and uniquely in your paper by each of you.

Your report should include the following sections:
   a) title page,
   b) Introduction,
   c) Methods section,
   d) Results section,
   e) And Discussion.

Each section is described briefly below. For the most part, you will be writing in APA style to compose this paper, and if you follow these instructions, the style is embedded in them. The paper will most likely be 5 – 8 pages in length.

**Title Page**

The title page contains the title of your paper, centered and presented about mid-sheet, followed by your name, the affiliation (Carleton College), and the date of submission. Items should be centered, with double-spacing in between. A “running head” begins on this page, in the top right corner of the sheet. This is an abbreviated version of your title that would be printed in the page margin if the manuscript were published in a journal. Put a short title in the upper right area of the page, followed by the page number (i.e., 1). The page number can either be next to the running head, or underneath it. Continue the running head and page numbering in the upper right corner throughout the rest of the document.

**Introduction**

The introduction typically introduces the question of the research as a general conceptual issue, and follows that with background research experiments pertinent to the
question. I don’t expect you to go to the library and actually research a topic for this paper, but you should be able to use Sniffy the manual and the class textbook to provide some background surrounding a question you are asking (about schedules, or stimuli in classical conditioning, or habituation, etc). End the introduction with the particular question you will ask in your research with Sniffy, and hypothesize how the results will turn out if you are right. If you cite any references in this section, use the style of citation that you see throughout the textbook as your model (i.e., Name, year).

Methods

The methods section includes 3 subsections: Subject, Apparatus, and Procedure. Under Subject: describe that you are using 1, or n number of virtual rats constructed from Sniffy Pro (Alloway, Graham, Wilson & Krames, 2000). This section will probably be 1 sentence for you. You may be using more than 1 rat to run a control, so make sure you get the number right. Also, if the rat has been pre-trained for anything (i.e., a VR schedule, for example) before the beginning of your experiment, make that history known in the Subject section.

In Apparatus, simply write that the apparatus is the virtual operant conditioning chamber in Sniffy Pro (same reference). In addition, make sure you list any stimuli that are presented, and their strength (i.e. med, high tone or shock, etc) as part of the apparatus.

For Procedure, describe the phases of the experiment. This should mean that the section is constructed in full sentences, but describes accurately the DESIGN of the experiment you conducted, the ORDER of the phases, the NUMBER of trials per phase, etc. If you write out what you plan in the DESIGN CLASSICAL COND experiment for each phase, the information should be accurate.

Results

In the results, you need to present graphs in the text, or on separate pages (your choice) and describe the behavior of the animal. I would expect to see a cumulative record, or at least parts of it, to illustrate the shape of behavior, if that is an important variable to look at in your study.

The cumulative record you see when you run Sniffy records responses by moving a pen vertically whenever one occurs. The backslash mark indicates when reinforcement is given. On an FR-1 that occurs with every response, so the backslash marks are usually distributed fairly tightly together when the animal is responding quickly. There will be some pausing between responses during initial shaping (as seen above), during fixed schedules (whether ratio or interval), and during EXT. A total of 75 responses takes up a vertical move from the bottom to the top of the paper on the cumulative record. Then the pen has to reset to the bottom of the paper to continue recording, so the apparatus produces a long vertical mark down to reset itself (i.e., this should not be analyzed as meaningful to you). You can save the data you have collected and then open the data file in EXCEL if you want to see the actual numbers that make up the cumulative record. Thus, if you want to know the total responses before extinction, or a change in schedule, for example, you should be able to figure that out from the raw data.
If classical conditioning is going on, the suppression ratio histogram (bar graph) should be presented AND described in the text. The CS-Response Strength Mind Window may be important, if you want to compare the strength of association across a number of CS’s in your study. And the fear/pain sensitivity mind window may be relevant, if habituation to pain, or a build-up of fear to a previously neutral CS, are important variables to examine. The issue to avoid in the results is too much speculation and over-interpretation; the results section of any scientific report is meant to present the behavioral outcome only, and not to interpret what that means, or any new problems that arise. The point of the discussion section is to provide a thoughtful interpretation of your results.

Discussion
Start by summarizing briefly the general findings, in directional terms (i.e., responding increased to X, and decreased whenever Y was presented…). Then relate these findings to the question asked at the beginning of the paper. Finally, try to integrate your findings with classical conditioning as we know it. Does your finding shed new light on the associations formed in classical conditioning? Does it further support certain published findings? Does it confirm a particular kind of internal mechanism for learning? You probably want to spend 2 paragraphs or more here, but I don’t expect a return to the literature to express the significance or relevance of this. Just re-integrate with the introduction’s offerings.

References
You should provide any references in a list at the end of the paper, starting on a separate piece of paper. References are now indented, with author first, then year, then title, then journal name, then pages. For books, the order is author, year, title, publishing co. and city of publishing co. See reference list at the back of your textbook for examples of how these should look.